



PIER Energy System Integration Program Area

CERTS Real Time System Grid Management

Contract #: 150-99-003 **Project #:** 4

Contractor: Lawrence Berkeley National Laboratory

Subcontractors: Electric Power Research Institute, Electric Power Group

Project Amount: \$1,105,000

Contractor Project Manager: Joseph Eto (510) 486-7284

Commission Contract Manager: Don Kondoleon (916) 654-3918

Status: Completed

Project Description:

This is follow-on work initiated in the Real Time System Monitoring and Control area of the existing CERTS Electric System Reliability Enhancements contract. The purpose of the contract is to lay the ground work for a transition in reliability management philosophy from one based on passive readiness (with large, market-inhibiting safety margins), to one based on active anticipation and pre-emptive actions in response to impending emergencies. This project will provide integrated research and technology development that will help produce quicker and more flexible options for meeting the reliability, stability and ancillary service needs of California's electricity consumers.

This project supported the PIER Program objectives of:

- Improving the reliability/quality of California's electricity infrastructure by finding new solutions to ensure and maintain reliable electric service in California's restructured electricity market.
- Improving the energy cost/value of California's electricity by increasing the efficiency and competitiveness of California's restructured electricity market.

Proposed Outcomes:

1. Conduct research in the area of real time system management that will allow California's interconnected power system to operate with a better understanding of actual, ever-changing in real time, reliability limits.
2. Conduct research in the area of real time system management that will contribute to the transformation of the electric grid to an automatic switchable network.

Actual Outcomes:

1. Modified, fabricated, installed, demonstrated, and provided training for advanced prototype tools for real time system operations in close coordination with and through in-kind support from the California Independent System Operator (ISO). The tools included: VAR Management extended to include the full California system, Synchronized Phasor Measurement Post-Disturbance Workstation extended to include data from WAPA and SCE.
2. The infrastructure to allow for California ISO to obtain phasor information in real time also prepared in anticipation of future real-time monitoring applications involving the use of these data.

Project Status:

The tasks under the contract amendment for this project, as outlined above, have all been completed. Additional tasks, funded through separate follow-on amendments to the original contract, are still in progress. Preparation of the final report for this project is pending completion of the overall contract. Technical appendices describing work completed under each task have been prepared. The results of the project are being used (or are expected to be used) by the California ISO, and Energy Commission PIER.